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I, JULIE BILLINGSLEY, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2003901195 for a patent by JAMES PETER MASON as filed on 17 March 2003.

WITNESS my hand this
Thirtieth day of March 2004

J. Billingsley

JULIE BILLINGSLEY
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ORIGINAL

PROVISIONAL SPECIFICATION FOR AN INVENTION ENTITLED

Invention Title: MODELLING TERRAIN IMPROVEMENTS

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The invention is described in the following statement :

This invention relates to modelling terrain.

Modellers use terrain units to create the three-dimensional visually appealing terrain in combination with models for various purposes such as, for instance, playing war games or incidental scenery for a model railway and the like.

Conventionally this terrain is provided by individual units being placed together on a supporting surface so that they fit in an adjacent relationship to provide a continuity across a selected area.

Several of the problems which are being addressed by this invention will now be discussed.

A current constructional method uses a polystyrene base with an upper form provided by a resin.

Difficulties relate to this current method insofar that the units are, because of their character, vulnerable to damage including having any painted surface chipping or even edges of the styrene being broken.

A further problem is that the current materials make up units which are in comparative terms quite heavy. This is of concern where, for instance, a modeller may be competing in a competition where the terrain must be carried to the competition location by the modeller.

OBJECT OF THIS INVENTION

It is an object of this invention to reduce at least one of the above problems.

BRIEF DISCLOSURE OF THE INVENTION

In one form of this invention, although this need not necessarily be the only or indeed the broadest form of this, there is proposed a terrain model element which includes a base of a foamed plastics material having adhered on an upper face a shaped layer providing the modelling terrain shape which is comprised of latex.

In preference, the base is sheet-like.

In preference, the upper modelling layer of latex is formed so that it includes parts that are adhering to an upper surface of the base material and other parts of which are hollow and which therefore have a lowermost surface which is above and separate from an uppermost surface of the base material.

This accordingly leaves a hollow area which in practice has some advantage especially since it implicitly keeps the weight of the unit low and it has been found to still provide an adequate shaping in practice and to allow a higher degree of flexibility of the shape which makes this potentially less vulnerable to impact and therefore wear and other damage.

One of the problems with latex however where this is a material that can be either sprayed or brushed on to the inside of a mould so that its shape is formed as a thin layer, is that as the material cures, it is especially vulnerable to contraction in one direction as compared to any transverse direction.

It is fairly obvious therefore that this will cause difficulties with terrains in terms of joining units together so that there is a continuity of the shape.

As the actual unilateral direction of contraction may not always be able to be accurately predicted, this makes it even worse for predicting the end result,

subsequent to casting this material, and especially where the purpose of the production is for mass production purposes.

We have discovered that there is an advantage during the application and initial curing stage by having at least a surface of the mould such that it will absorb or adsorb moisture from the applied latex.

In preference, such absorption can be achieved by using a material such as Plaster of Paris which is implicitly porous and in practice absorbs a significant amount of water.

My discovery is that this technique then of providing a mould of this absorbent material assists in reducing differential contraction of the curing latex material and therefore provides for more reliability in achieving an end shape that will be of consistent size and shape subsequent to an initial curing and stripping from the mould stage.

A further difficulty in relation to previous modelling units is that the shaping form of resin that will be painted, over time, is found to lose adhesion.

Accordingly, conventional paint which is applied to resin after a period becomes chipped and breaks away, so that continual re-application of paint or a reduction in the quality of the terrain results.

A further discovery has been that with latex, most acrylic paints can be applied and will adhere initially "well" but, surprisingly, over time, they become even more integrated with the latex so that after a significant period of time, I have discovered that the latex itself can be stretched with the paint and with an appropriate selection of paint, the paint itself will stretch with the latex without breaking away or without showing any separation of the paint layer itself.

This then is of significant advantage in this business.

In preference, the base unit is made from a foamed plastic and, in this case, from a urethane foam which I have found can be adhered effectively to a latex upper layer.

Our discovery has been that a self-adhesive material can be provided and sheets of polyurethane foam with such a self-adhesive upper surface can be purchased commercially in this form.

Reference has been made to terrain units and it is intended in this invention that the shape of such units shall be such that in plan they will provide for joining with other units to provide some form of continuous terrain shape.

This will then implicitly presume that the thickness at adjoining or adjacent edges are relatively matched, which is to say that the height above a supporting surface level will be the same in respect of such adjacent units or units that are expected to be adjacent. Various plan shapes can be used. For instance, they can be a regular hexagon, a square, or a triangle, as typical instances.

A typical thickness of the sheet might be twenty millimetres, although at least within the form there can be some change of thickness and to illustrate, it might have a step up to forty millimetres or even fifty millimetres in some case. Again, as a typical illustration, that also with the consideration in mind that if these are to be placed on a common planar surface in an adjacent vicinity, the terrain is expected to be matching and therefore the relative height above the supporting surface would be normally consistent.

This is not to say that there should not be tailor-made variations from this where a particular effect is to be achieved.

The latex layer itself might be two or three or more millimetres in thickness as a separate sheet having, however, this characteristic that in parts, it is separated and therefore leaves a void or hollows beneath the sheet or thin layer of latex as compared to the underneath base material.

The actual thickness of the latex sheet itself is not found to be especially critical as it is formed by brushing or spraying onto a receiving model surface so that such thickness can vary from application to application. However, it is conventionally very much thinner than the base of supporting material.

For a better understanding of this invention it will described with reference to drawings where, in Figure 1 there is a cross section through a unit, Figure 2, through a perspective view of a single hexagonal void, and Figure 3 shows a perspective view of a number of units located as they would be to provide a continuity of scene.

Shown in the drawings then is a base unit showing a hexagonal plan shape, which is of regular hexagonal shape such that this can fit with adjacent units as shown in Figure 3, and has a form that will generally match both in terms of continuity of shape and height such adjacent units.

The base 1, is made from polyurethane foam of normal thickness and there is a latex surface 2 which is adhering across a top of this underneath base 1.

There are parts within the latex that lies above a base level and leave a void as shown in 3.

In order to get to the shape shown, the latex is purchased as a liquid appropriate for brushing or spraying (it can be either type of material) and this is laid as a thin layer on to the inside surface of a mould made preceding this from Plaster of Paris.

The Plaster of Paris is such that it will be porous and has the advantage that this ability to absorb the moisture appears to restrict differential contraction during the curing of the latex. Once an adequate curing stage has been reached, the latex is stripped from the mould and is then applied from a base unit as is shown in 1, which has a planar upper surface with a self-adhesive coating appropriate to adhere the latex to the upper surface of the base material.

The foam from which the base is made is a flexible polyurethane foam which has the significant advantage of being very robust in being handled, firstly, because it is flexible and secondly, it can be bent even grossly without causing injury, as contradiction to rigid foam.

The advantage of having the latex layer, as has been previously stated, is that this then will receive acrylic paints (and this applies to most acrylic paints that we have tried) which thereby adhere and seem to increase their adhesion over time to the stage where, after a year or so, in our experience, the stretching of the latex will result only in the paint surface itself also stretching with the surface without breaking or fracturing away.

The invention applies to both units manufactured in accordance with the description, the method of construction and to assemblies using such units in combination.

It also applies to the units where constructed in a regular plan shape, including hexagonal, square and triangular.

Throughout this specification the purpose has been illustrate the invention and not to limit this.

Dated this 17th day of March 2003.

JAMES PETER MASON
By his Patent Attorneys,
COLLISON & CO.

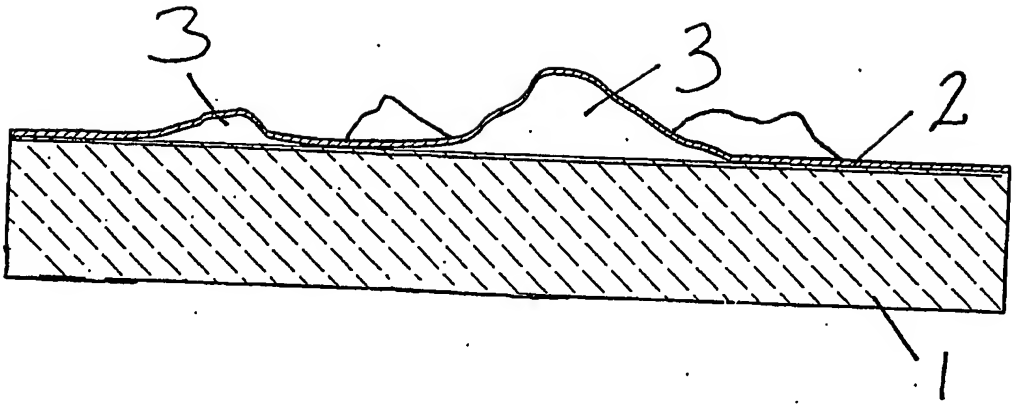

FIG. 1

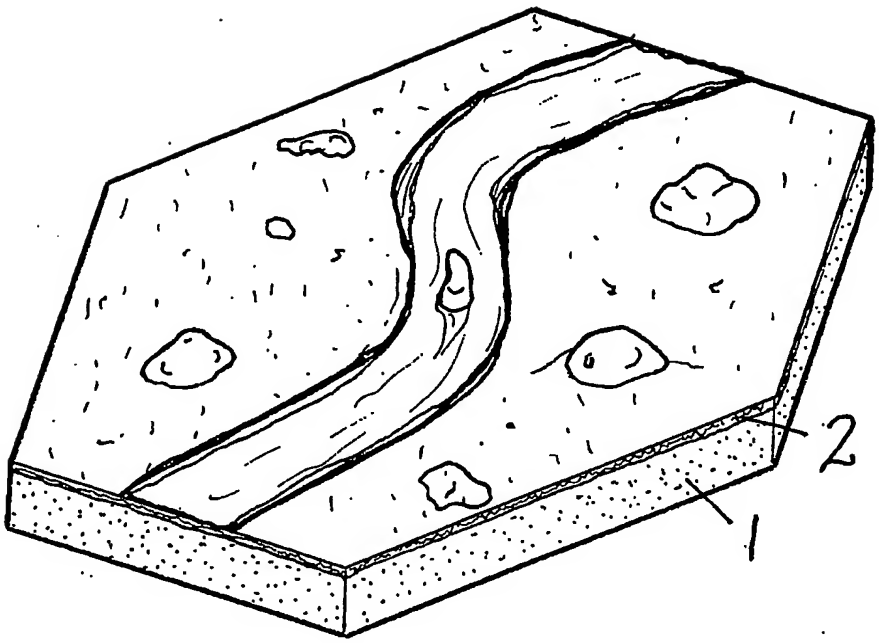

FIG 2

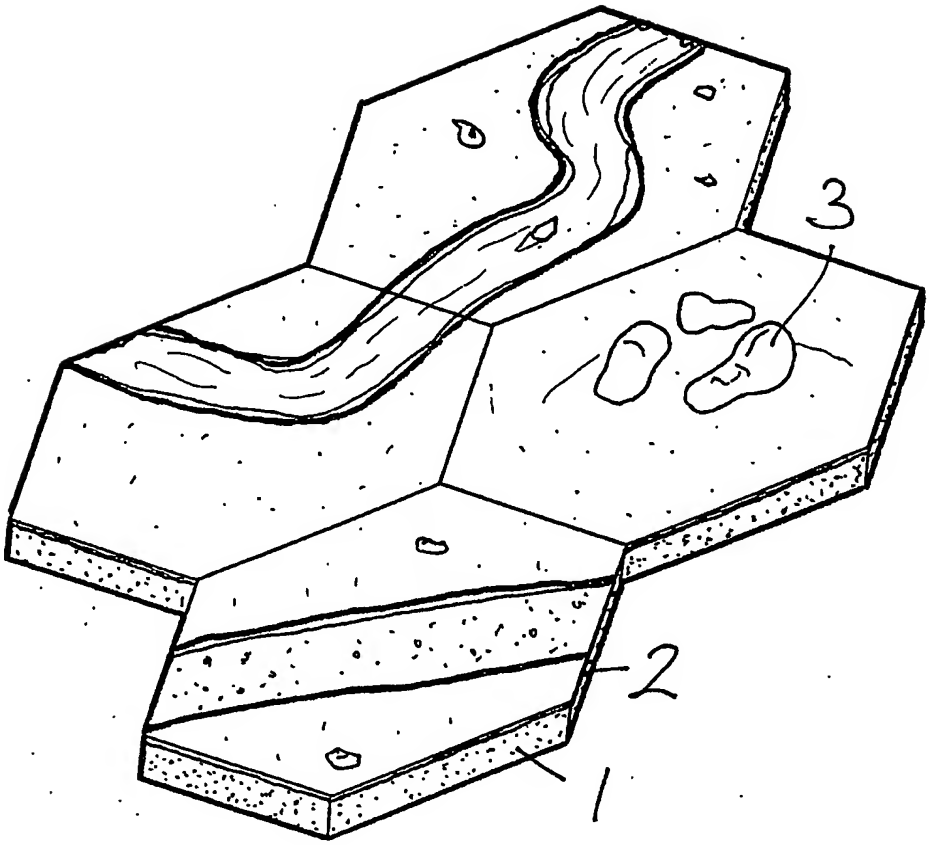

FIG. 3